



Patch test results with metals and meteorological conditions

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Year: 2008
Journal: International Archives of Allergy and Immunology. 147 (3): 235-240

Abstract:

BACKGROUND: Nickel, cobalt and chromium are some of the most common causes of type IV sensitizations and subsequent allergic contact dermatitis. Accurate diagnosis of contact sensitization to these metal salts is made possible through standardized patch testing; however, patch tests with metal allergens may be influenced by meteorological conditions at the time of testing. We aimed to investigate how patch test reactions to these metals relate to outdoor temperature and humidity at the time of testing. **METHODS:** Clinical patch test results from 61,435 patients tested at Austrian and German dermatology departments participating in a contact sensitization surveillance network (www.ivdk.org) from 1993 through 2001 were evaluated with weather data measured near the testing location and at the time of testing. Test reactions and ambient temperature and humidity were examined with multinomial logistic regression models. **RESULTS:** The odds of irritant and doubtful reactions to all 3 ionized metals increased during cold/arid conditions, and the odds of weak allergic (positive) reactions to nickel and cobalt also increased during cold/dry weather. Strong allergic reactions were essentially independent of weather conditions. **CONCLUSIONS:** The increase in irritant and doubtful reactions coinciding with decreasing temperature and humidity may be the result of an overall increase in skin irritation brought about by these ambient conditions. The observed increases in erythematous and infiltrated ('weak allergic') reactions may be due to doubtful reactions increasing in intensity and being (falsely) classified as positive during colder and drier conditions.

Source: <http://dx.doi.org/10.1159/000142047>

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

Climate Change and Human Health Literature Portal

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Austria; Germany

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Dermatological Effect

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified